



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :

Fumihiko YAMAGUCHI, et al.

Serial No.: 09/368,429

Art Unit: 1771

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Examiner: BEFUMO, JENNA LEIGH

For: CARPET, STAINPROOFING AGENT FOR CARPET AND METHOD FOR TREATING  
THE CARPET

DECLARATION

Honorable Commissioner of Patents and Trademarks

Washington, D. C. 20231

SIR:

I, Fumihiko YAMAGUCHI declare that:

- 1) I am one of the inventors of the above-identified application,  
and am familiar with the subject matter of said application  
as well as the disclosures in the cited references.
- 2) In order to demonstrate the advantage of the present invention,  
the following experiments were carried out under my direction  
and supervision.

Comparative Experiment 1

The purpose of this Experiment was to evaluate the effect of  
the addition of diphenylmethane-bis-4,4'-N,N'-ethyleneurea to the  
stainproofing agent composition of example 1 of the invention.

Diphenylmethane-bis-4,4'-N,N'-ethyleneurea (0.3 parts by weight) was added to the stainproofing agent composition of example 1 of the invention composed of 8 parts by weight of UNIDYNE TG3010, 1.9 parts by weight of SUMITEX RESIN M-3, 89.5 parts by weight of water and 0.6 parts by weight of ACX..

The resulting composition was subjected to evaluation test of example 1 of the specification with respect to water repellency, oil-repellency and stainproof property. The results were shown in table A below.

#### Comparative Experiment 2

A ternary copolymer of  $\text{CF}_3\text{CF}_2(\text{CF}_2\text{CF}_2)_n\text{CH}_2\text{CH}_2\text{OCOC}(\text{CH}_3)=\text{CH}_2$  (a mixture of the compounds in which  $n=3, 4$  and  $5$  in a weight ratio of  $5:3:1$ ),  $\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}(\text{CH}_2\text{CH}_2\text{O})_9\text{H}$  and  $\text{CH}_2=\text{C}(\text{CH}_3)-\text{COOCH}_2\text{CH}(\text{OH})\text{CH}_3$  was prepared in the same manner as example 1 of Amimoto et al (U.S. Patent No. 5,143,991).

A stainproofing agent composition was prepared in the same manner as example 1 of the specification except that the above-mentioned ternary copolymer (8.0 parts by weight) was used in place of UNIDYNE TG3010 (8 parts by weight).

The resulting composition was subjected to evaluation test of example 1 of the specification with respect to water repellency, oil-repellency and stainproof property. The results were shown in table A below.

#### Comparative Experiment 3

A quaternary copolymer of  $\text{CF}_3\text{CF}_2(\text{CF}_2\text{CF}_2)_n\text{CH}_2\text{CH}_2\text{OCOCH}=\text{CH}_2$  (a mixture of the compounds in which  $n=3, 4$  and  $5$  in a weight ratio of

5:3:1),  $\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}(\text{CH}_2\text{CH}_2\text{O})_6\text{H}$ ,  $\text{CH}_2=\text{CHCOOCH}_2\text{CH}(\text{OH})\text{CH}_2\text{Cl}$  and 2-ethylhexyl methacrylate was prepared in the same manner as example 2 of Amimoto et al (U.S. Patent No. 5,143,991).

A stainproofing agent composition was prepared in the same manner as example 1 of the specification except that the above-mentioned quaternary copolymer (8.0 parts by weight) was used in place of UNIDYNE TG3010 (8 parts by weight).

The resulting composition was subjected to evaluation test of example 1 of the specification with respect to water repellency, oil-repellency and stainproof property. The results were shown in table A below.

Table A

Number of cleaning	Water-Repellency (Score)				Oil-Repellency (Score)				Stainproof Ratio (%)			
	0	1	3	5	0	1	3	5	0	1	3	5
Example 1 of the specification	20	15	15	15	0	0	0	0	41	39	37	35
Comparative Experiment 1	20	10	10	10	1	1	0	0	30	26	23	18
Comparative Experiment 2	10	5	0	0	2	1	0	0	28	22	19	14
Comparative Experiment 3	10	0	0	0	2	0	0	0	29	23	18	14

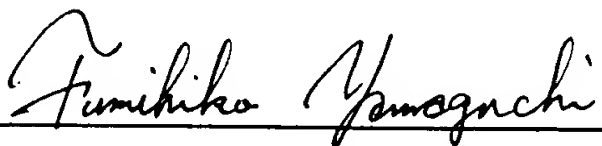
#### CONSIDERATION ON THE RESULTS OF EXPERIMENTS

As shown in Table A, the addition of urea component (diphenylmethane-bis-4,4'-N,N'-ethyleneurea) taught by JP59150175 adversely affect water repellency and stainproof property of the stainproofing agent composition of the invention.

Further, when using the copolymers taught by Amimoto et al, Stainproof Ratio is decreased to less than 30%.

I, the undersigned, declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: December 12, 2003

  
Fumihiko YAMAGUCHI